

Application Serial No.: 10/625,657  
Reply to Office Action dated May 8, 2006

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-4, 6-17, and 20 are presently active in this case, Claims 1, 7, 9, 16, and 20 having been amended, and Claim 19 having been canceled without prejudice or disclaimer by way of the present Amendment. Care has been taken such that no new matter has been entered. The Applicants respectfully request the entry of the amendments set forth herein as they are believed to place the application into condition for allowance.

In the outstanding Official Action, Claims 1-3 and 6-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Wakita et al. (U.S. Patent No. 6,299,682) in view of Gross et al. (U.S. Patent No. 6,547,849). Claim 4 was rejected under 35 U.S.C. 103(a) as being unpatentable over Wakita et al. in view of Gross et al. and further in view of Baum (U.S. Patent No. 4,140,170). For the reasons discussed below, the Applicants traverse the obviousness rejections.

Firstly, the Applicants note that the allowable subject matter of Claim 19 has been incorporated into independent Claims 1 and 9. Thus, the Applicants submit that Claims 1 and 9, and all the claims that respectively depend therefrom, are in condition for allowance.

Secondly, with regard to Claims 7 and 16, which have been rewritten in independent form, the Applicants submit that a *prima facie* case of obviousness (see MPEP 2143) has not

been established in the present case because the cited references, either when taken singularly or in combination, fail to disclose all of the recited features.

Claim 7 recites a casting apparatus comprising, among other features, a lid moving structure which moves the lid relatively to the die and controls an opening amount of the opening section above the die, wherein the lid comprises a first plate having at least a first hole, and an adjacent second plate having a corresponding number of second hole, and wherein the first plate is configured to rotate relative to the second plate such that each first hole coincides with each second hole. Claim 16 recites a casting apparatus comprising, among other features, means for adjusting an opening amount of the opening section according to a flow amount of the inert gas to the surface of the molten metal, wherein the lid comprises a first plate having a first hole, and an adjacent second plate having a second hole, and wherein the means for adjusting adjusts the opening amount of the opening section by rotating the first plate relative to the second plate such that the first hole coincides with the second hole. The Applicants submit that the Wakita et al. reference and the Gross et al. reference, either when taken singularly or in combination, fail to disclose all of the above features.

The Official Action acknowledges that the Wakita et al. reference fails to disclose “a lid with lid moving means to control an opening amount.” (Page 2, item 3.) The Gross et al. reference is cited for the teaching of lid (32); however, the Official Action does not provide an analysis regarding the features recited in Claims 7 and 16.

The Gross et al. reference describes a steel charge and slag forming material that is heated and refined in a ladle (17) using a ladle metallurgical furnace (10) to form a molten steel bath covered by slag. The steel charge or bath is heated within the ladle (17) by a vertically oriented electrode (38), which is supported by a conducting arm (36) and an electrode column (39). In operation, as column (39) lowers, electrode (38) is lowered through an aperture in the furnace hood or exhaust (34) and an aperture in the furnace lid (32) into the ladle (17) and beneath the slag in order to heat the metal within the ladle (17).

Thus, the Gross et al. reference describes a furnace hood (34) and a furnace lid (32) that each includes an aperture. However, the furnace hood (34) and the furnace lid (32) are not movable with respect to one another. The furnace hood (34) and the furnace lid (32) appear to be rigidly attached to one another by at least one member extending therebetween, as depicted in the figure. This interpretation is supported by the description which suggests that the furnace hood (34) and the furnace lid (32) are moved in unison by the hydraulic cylinder (33). (Column 4, lines 29-31.)

Accordingly, the Gross et al. reference also fails to disclose a first plate that is configured to rotate relative to a second plate such that each first hole coincides with each second hole, as recited in Claim 7, and means for adjusting that adjusts the opening amount of the opening section by rotating a first plate relative to a second plate such that the first hole coincides with the second hole, as recited in Claim 16. Thus, the Wakita et al. reference and

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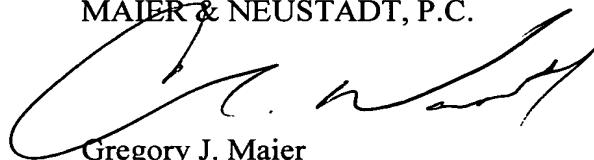
the Gross et al. reference, either when taken singularly or in combination, fail to disclose all of the limitations recited in Claims 7 and 16.

Accordingly, the Applicants respectfully request the withdrawal of the obviousness rejections of independent Claims 7 and 16.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully Submitted,

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